

# PATENT ABSTRACTS OF JAPAN

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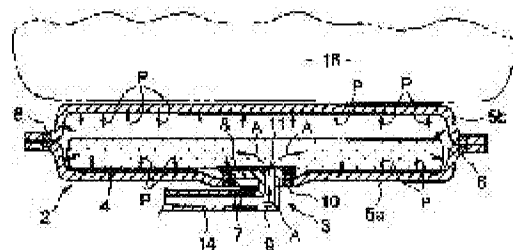
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## (54) **AIR BAG FOR MASSAGE AND AIR MASSAGE MACHINE**

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a massage air bag where a bag body is surely expanded and which is excellent in durability and to provide an air massage machine using it.

SOLUTION: A spacer 4 where air permeability by communication between an opening part 11 and a bag body 2 is kept even in a flat state and which is elastically deformation possible is internally arranged in the bag body 2. Since the spacer 4 secures an area under inner pressure P inside the bag body 2, the bag body 2 is easily expanded in the air bag 1. A suction and exhaust port body 3 is not rubbed by the inner surface of the bag body 2 so that durability is enhanced. The feeling of a foreign matter is reduced by elastic deformation and then, a using feeling is improved.



## CLAIMS

[Claim(s)]

[Claim 1]A bag body which will be in a flat state in a contracted state.

An air-supply-and-exhaust port body which has a flange at one in an end part of a communication trunk which leads air by which air supply and exhaust is carried out to this bag body and to which said flange was attached by the whole surface of said bag body.

It is the air bag for a massage provided with the above, and breathability which opens for free passage an opening which attended said bag body of said air-supply-and-exhaust port body, and said bag body could be maintained also in a flat state of said bag body, and said opening was covered and the inner package of the spacer in which elastic deformation is possible was carried out.

[Claim 2]The air bag for a massage according to claim 1 positioning and forming a spacer by inner skin of said bag body, or an opening of said air-supply-and-exhaust port body.

[Claim 3]Air massaging apparatus comprising:

A massaging machine body.

The air bag according to claim 1 or 2 allocated in the human body receptacle side side of this main part.

An air air-supply-and-exhaust device which carries out air supply and exhaust of the air to these air bags.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention carries out air supply and exhaust of the air from the air-supply-and-exhaust port body provided in the bag body which serves as flat shape mostly at the time of contraction, and relates to expansion and the air bag for a massage to shrink.

[0002]

[Description of the Prior Art]The air bag for a massage is constituted by the bag body welded and formed [ outer edge section ] in piles in air-impermeable cloth, and the air-supply-and-exhaust port body which established the hole in the cloth which makes the whole surface of this bag body, and was welded from the inside. The air-supply-and-exhaust port body is provided with the elbow-shaped communication trunk fabricated by

a flange and one. A communication trunk is connected with the air hose which leads to an air compressor, and an air bag is expanded and contracted by carrying out air supply and exhaust of the air to a bag body from an air-supply-and-exhaust port body.

[0003]In order for an air bag to swell well, the power pushed from an inner surface must be larger than the load concerning a bag body. The power pushed from an inner surface is proportional to the pressure and cross-section area of the air by which air supply and exhaust is carried out to the inside of a bag body from an air-supply-and-exhaust port body. Therefore, if load is added to a bag body and the opening by the side of the bag body side of an air-supply-and-exhaust port body is sealed, the cross-section area resulting from the power which resists load and is pushed from an inner surface will turn into only a cross-section area of an opening, and an air bag will not swell well.

[0004]Then, two or more projections are provided near the opening so that the opening by the side of the bag body side of an air-supply-and-exhaust port body as shown in drawing 7 may not be sealed, a required cross-section area is secured by forming a crevice so that air may flow in around a projection, and there is an air bag which resists the load concerning a bag body and swells.

[0005]

[Problem(s) to be Solved by the Invention]However, if it is pressed with the human body 100 which can change flexibly and an air bag receives load as shown in drawing 7, It may be pressed so that the cloth 102a and 102b which forms the bag body 101 may imitate the projection 106 provided in the 105th page of an about 104 opening [ of the air-supply-and-exhaust port body 103 ] flange, and the crevice 107 between the projection 106 circumferences may be crushed, and the cloth 102b may close the opening 104. Therefore, the problem that it does not swell in the shape for which an air bag asks arises.

[0006]Since the air-supply-and-exhaust port body 103 attached to the bag body 101 is formed with rigid resin etc., when using it, carrying out the inner package of this air bag to a massaging machine body, in the contracted state of an air bag, a user senses the air-supply-and-exhaust port body 103 and the hard feeling of the projection 106, and its usage feeling is bad. The projection 106 provided in order to form the crevice 107 in about 104 opening rubs against the cloth 102b of the field which counters, and wearing the cloth 102b out etc. also produces the problem of durability degradation.

[0007]Then, there is SUBJECT of this invention in providing the air massaging apparatus using the air bag for a massage and this where the bag body swelled certainly and which were excellent in endurance and a usage feeling, in order to solve these problems.

[0008]

[Means for Solving the Problem]A bag body from which an air bag for a massage of claim 1 will be in a flat state in a contracted state, It has a flange at one in an end part of a communication trunk which leads air by which air supply and exhaust is carried out to this bag body, And breathability which opens for free passage an opening which attended said bag body of said air-supply-and-exhaust port body of an air bag for a massage provided with an air-supply-and-exhaust port body to which said flange was attached by the whole surface of said bag body, and said bag body is maintainable also in a flat state of said bag body, And said opening is covered and the inner package of the spacer in which elastic deformation is possible is carried out. Since a spacer secures in a bag body area which internal pressure requires, a bag body can provide an air bag for a massage which swells easily. Since an air-supply-and-exhaust port body more nearly hard than a bag body and a bag body side do not rub, endurance improves. And since elastic deformation is possible for a spacer, it is flexible and a feeling can use it well.

[0009]An air bag for a massage of claim 2 positions and forms a spacer by inner skin of said bag body, or an opening of said air-supply-and-exhaust port body. Since a spacer is positioned to an opening, a bag body can provide an air bag for a massage who swells certainly.

[0010]Since expansion of an air bag is trustworthy and is provided with an air bag of claim 1 which has effects, such as excelling in endurance, or claim 2, the massaging machine of claim 3 can provide quality air massaging apparatus.

[0011]

[Embodiment of the Invention]A 1st embodiment of this invention is described with reference to drawing 4 from drawing 1. The air-supply-and-exhaust port body 3 to which the air bag 1 for a massage takes air in and out of the bag body 2 as shown in drawing 1 and drawing 2 is formed, and the spacer 4 is constructed inside. The bag body 2 piles up the two air-impermeable cloth 5a and 5b fabricated by the rectangle, makes the outer edge section in airtight welding 6, and is formed, and the hole 7 for attaching the air-supply-and-exhaust port body 3 is formed in the center of one cloth 5a. The elbow-shaped communication trunk 9 is fabricated by the circular flange 8 at one, and the hard air-supply-and-exhaust port body 3 made of a synthetic resin turns the communication trunk 9 outside, and is made in airtight welding 10 from the inner surface of the hole 7 of the bag body 2. The air-supply-and-exhaust port body 3 may be attached from the outside to the cloth 5a, welding may be sufficient as it, and adhesion may be sufficient as it.

[0012]The spacer 4 is a product made from urethane foam of the shape of sponge with the material with breathability in which elastic deformation is possible, for example, an open cell, and as shown in drawing 1, it is constructed by the whole internal abbreviation for the bag body 2. When the load about people's weight takes in the flat state which the air bag 1 contracted, while carrying out elastic deformation of this spacer 4 flexibly, It has the hardness of the grade which is not crushed to such an extent that the inside of the bag body 2 and the communication trunk 9 will be in a non-communicating state, and it has the breathability which always opens for free passage the inside of the opening 11 of the air-supply-and-exhaust port body 3 shown in drawing 2, and the bag body 2 by that cause.

[0013]They are used for it, carrying out the inner package of two or more these air bags 1 to the mat section 12 as a massaging machine body of the mat-type air massaging apparatus shown, for example in drawing 3. As for this air massaging apparatus, the air air-supply-and-exhaust device 13 is connected with each air bag 1 with the air hose 14, respectively, Air supply and exhaust of the air is carried out one by one to each air bag 1 via the air compressor and distributor which are controlled by the control device 15 formed in the air air-supply-and-exhaust device 13 and which are not illustrated, expansion and contraction are repeated, and a massage effect is given to a user.

[0014]Next, an operation of this air bag 1 is explained. In the case of the massaging machine of drawing 3, when a user lies in the mat section 12, a user's weight is added to the air bag 1 as load. When load is applied to the air bag 1 with the human body 16 like drawing 2, in order to resist this load and for the air bag 1 to swell, bigger power than this load needs to work from air bag 1 inner surface. The power from the inner surface of this air bag 1 is proportional to the cross-section area on which the pressure P and the pressure P of the air to which air is supplied from the air-supply-and-exhaust port body 3 act.

[0015]In the air bag 1 by a 1st embodiment, as shown in drawing 1 and drawing 2, the opening 11 which faced in the bag body 2 of the air-supply-and-exhaust port body 3 is covered, the spacer 4 is constructed by the approximately whole area of the bag body 2, and this spacer 4 is positioned so that it may not move by all the inner skin of the bag body 2. Even if the load about people's weight takes in the flat state which the air bag 1 contracted as for the spacer 4, while carrying out elastic deformation flexibly, Since it has the breathability which always opens for free passage the inside of the opening 11 of the air-supply-and-exhaust port body 3 shown in drawing 4, and the bag body 2, As shown in drawing 4, as the arrow A shows the state where the air bag 1 contracted, from the air-supply-and-exhaust port body 3, air flows into the spacer 4, and it crosses

all over the field where the spacer 4 was constructed, and the internal pressure P is applied to the bag body 2. That is, even when the load by the human body 16 is applied, the power from an inner surface can be applied all over the field where the spacer 4 is constructed, and the air bag 1 can swell easily.

[0016]Since the spacer 4 is arranged at the opening 11 of the air-supply-and-exhaust port body 3 and the air-supply-and-exhaust port body 3 which is hard does not rub against the bag body 2 directly rather than the bag body 2 even if the air bag 1 contracts and the bag body 2 will be in a flat state, it can be considered as the air bag 1 excellent in endurance. And since this spacer 4 has the material in which elastic deformation is possible, for example, elasticity like urethane foam, When it applies to the air massaging apparatus shown in drawing 3, the air-supply-and-exhaust port body 3 provided in the air bag 1 can ease the foreign body sensation of hitting locally for a user, at the time of contraction of the air bag 1.

[0017]Next, a 2nd embodiment of this invention is described with reference to drawing 5. Like a 1st embodiment, the air bag 1 by drawing 5 makes the air-supply-and-exhaust port body 3 the cloth 5a welding 10 from the inside, and is formed in the bag body 2 fabricated by the rectangle, and the inner package of the spacer 17 formed in L type containing the vertical angles 18a and 18b of the couple of the bag body 2 is carried out. In connection with this, it is attached to one cloth 5a of the bag body 2 so that the opening 11 of the air-supply-and-exhaust port body 3 may lap with this spacer 17.

[0018]When the load about people's weight is applied like the spacer 4 of a 1st embodiment, while carrying out elastic deformation of this spacer 17 flexibly in the flat state where the air bag 1 contracted, It has the hardness of the grade which is not crushed to such an extent that the inside of the bag body 2 and the communication trunk 9 will be in a non-communicating state, and it has the breathability which always opens for free passage the inside of the opening 11 of the air-supply-and-exhaust port body 3 shown in drawing 2, and the bag body 2 by that cause. Since it is the same as a 1st embodiment about other composition, about the same composition, the same numerals as the applicable composition of a 1st embodiment are attached, and the explanation is omitted.

[0019]Since the spacer 17 is positioned by the inner skin of the bag body 2, even if it repeats the air bag 1 and makes it expand and contract by making the spacer 17 into L type which is one of the shape having contained the vertical angles 18a and 18b of the couple of the bag body 2, the spacer 17 does not move within the bag body 2.

Therefore, since the physical relationship of the air-supply-and-exhaust port body 3 and the spacer 17 which were attached to the air pack 1 is maintained and the opening 11 of

the air-supply-and-exhaust port body 3 is not stopped in air bag 1 contracted state, the air bag 1 can be blown up certainly.

[0020]The both ends of the axis which turns into a major axis most when the shape of a bag body is the arbitrary shape except a circle, for example, the both ends of the major axis of an ellipse form, Or the inner package of the spacer is carried out to a series of shape including the both ends of the longest axis which can be connected with the straight line of the shape devised in order to massage on a human body, and the same effect is acquired by attaching the air-supply-and-exhaust port body 3 to the position which laps with the spacer.

[0021]Since the spacer 17 is arranged at the opening 11 of the air-supply-and-exhaust port body 3 and the air-supply-and-exhaust port body 3 which is hard does not rub against the bag body 2 directly rather than the bag body 2 even if the air bag 1 contracts and the bag body 2 will be in a flat state, it can be considered as the air bag 1 excellent in endurance. And since this spacer 17 has the material in which elastic deformation is possible, for example, elasticity like urethane foam, the air-supply-and-exhaust port body 3 provided in the air bag 1 can ease the foreign body sensation of hitting locally for a user, at the time of contraction of the air bag 1.

[0022]Especially in a 2nd embodiment, since it is not necessary to construct the spacer 17 all over the bag body 2 compared with a 1st embodiment even if the air bag 1 is enlarged, saving of a material cost can be performed.

[0023]A 3rd embodiment of this invention is described with reference to drawing 6. Like 1st and 2nd embodiments, the air bag 1 by drawing 6 attaches the air-supply-and-exhaust port body 3, and is formed from the inside of the bag body 2, and the spacer 19 is attached to the bag body 2 inner-surface side of the flange 8 of the air-supply-and-exhaust port body 3.

[0024]Area S which attaches the spacer 19 is made more than the minimum area that can secure the power in which the load concerning the air bag 1 is resisted and the air bag 1 swells. Since the spacer 19 is attached to the air-supply-and-exhaust port body 3, if the function and performance of the air bag 1 are not injured, the air-supply-and-exhaust port body 3 may be attached to the position of bag body 2 throat. Since what is necessary is to just be fixed to such an extent that the spacer 19 is not omitted from the air-supply-and-exhaust port body 3 opening 11 at the time of expansion and contraction of the air bag 1, the method of attaching the spacer 19, By checking the breathability of the spacer 19, as long as there is nothing, it may attach with adhesives and may insert in by the engaging projection engaged mutually.

[0025]When the load about people's weight is applied like the spacers 4 and 17 of 1st

and 2nd embodiments, while carrying out elastic deformation of this spacer 19 flexibly in the flat state where the air bag 1 contracted, It has the hardness of the grade which is not crushed to such an extent that the inside of the bag body 2 and the communication trunk 9 will be in a non-communicating state, and it has the breathability which always opens for free passage the inside of the opening 11 of the air-supply-and-exhaust port body 3 shown in drawing 6, and the bag body 2 by that cause. Since it is the same as a 1st embodiment about other composition, about the same composition, the same numerals as the applicable composition of a 1st embodiment are attached, and the explanation is omitted.

[0026]Since the spacer 19 is attached to the opening 11 of the air-supply-and-exhaust port body 3 according to a 3rd embodiment, load is applied to the air bag 1, air can flow into the peach spacer 19, and the air bag 1 can swell easily and certainly. Since the spacer 19 is arranged at the opening 11 of the air-supply-and-exhaust port body 3 and the air-supply-and-exhaust port body 3 which is hard does not rub against the bag body 2 directly rather than the bag body 2 even if the air bag 1 contracts and the bag body 2 will be in a flat state, it can be considered as the air bag 1 excellent in endurance. And since this spacer 19 has the material in which elastic deformation is possible, for example, elasticity like urethane foam, When it applies to the air massaging apparatus shown in drawing 3, the air-supply-and-exhaust port body 3 provided in the air bag 1 can ease the foreign body sensation of hitting locally for a user, at the time of contraction of the air bag 1.

[0027]Since the shape and the size of the spacer 19 can be especially made [ according to a 3rd embodiment ] the same irrespective of the shape and the size of the air bag 1 in addition to the effect acquired by 1st and 2nd embodiments, expense concerning the spacer 19 can be made into the minimum.

[0028]Although it applied to the mat-type massaging machine and a 3rd embodiment explained from the above 1st, it is also possible to apply to the air bag by which an inner package is carried out, for example to massaging machines of other forms, such as a massaging machine of a chair type. Although the bag body 2 piled up the two air-impermeable cloth 5a and 5b formed in the rectangle, should carry out the outer edge section welding 6 and should form it in the 1st to 3rd embodiment, the cloth of one sheet may be turned up, and an outer edge section is welded, it may be formed, and they may be arbitrary shape if needed.

[0029]

[Effect of the Invention]The breathability which opens for free passage the opening which attended the bag body of the air-supply-and-exhaust port body, and a bag body is



maintainable also in a flat state, and according to the invention which covers and carries out the inner package of said opening to said bag body, the spacer in which elastic deformation is possible. Since a spacer secures in a bag body the area which internal pressure requires, a bag body can provide the air bag for a massage which swells certainly. Since an air-supply-and-exhaust port body more nearly hard than a bag body and a bag body side do not rub, endurance improves. And since elastic deformation is possible for a spacer, foreign body sensation, such as an air-supply-and-exhaust port body which a user senses, is reduced, and its usage feeling is good.

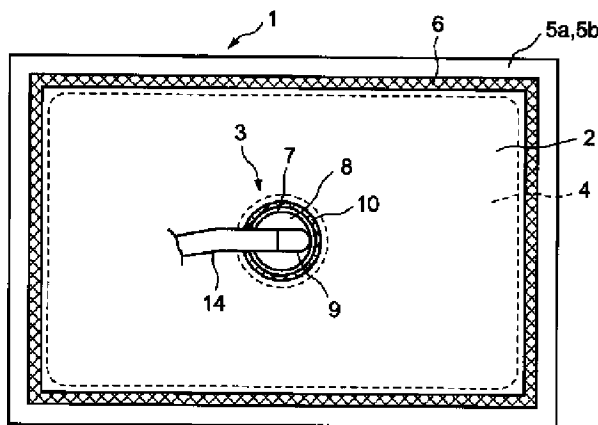
[0030] Since a spacer is positioned to an opening according to the invention which positions and forms a spacer by the inner skin of said bag body, or the opening of said air-supply-and-exhaust port body, a bag body can provide the air bag for a massage who swells certainly.

[0031] Expansion of a bag body is trustworthy to a massaging machine body, and according to the invention provided with said air bag for a massage which has effects, such as excelling in endurance, quality air massaging apparatus can be provided.

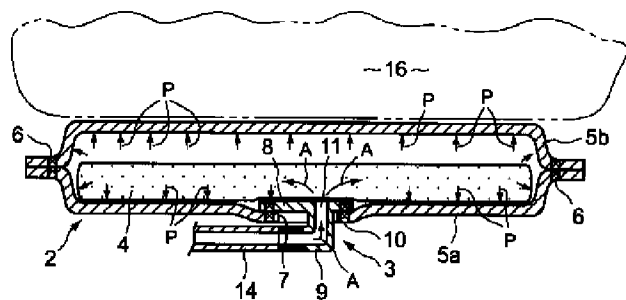
## DRAWINGS

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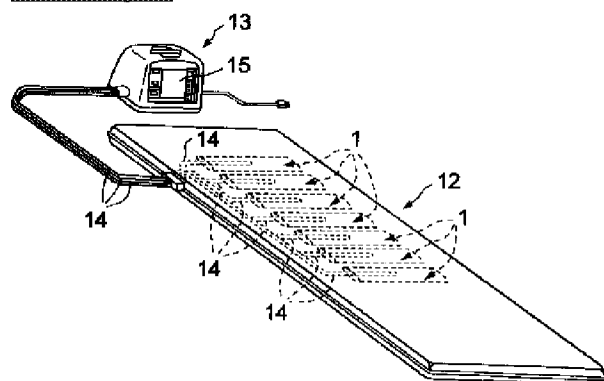
[Drawing 1]



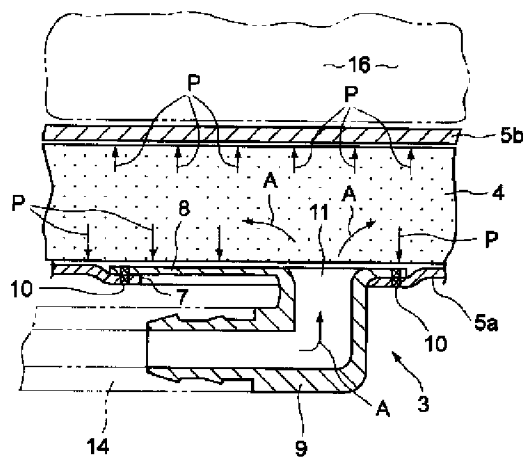
[Drawing 2]



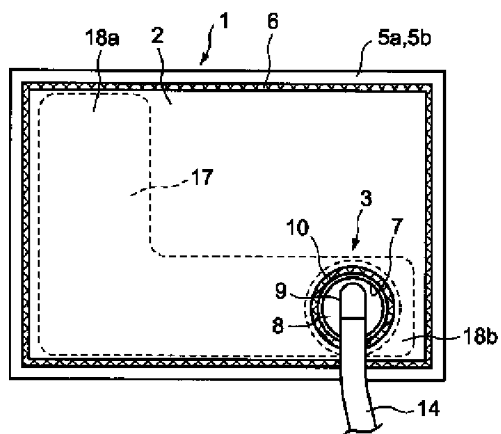
[Drawing 3]



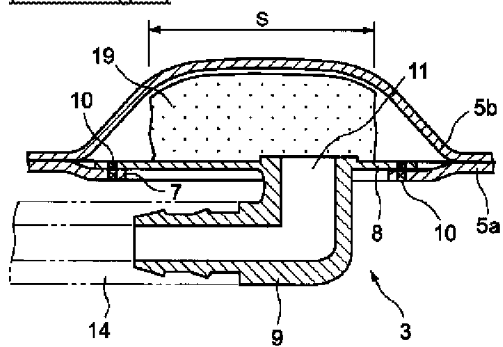
[Drawing 4]



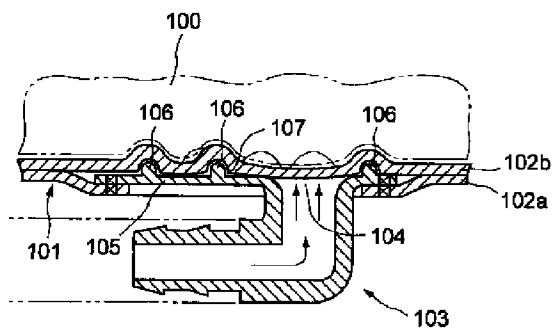
[Drawing 5]



[Drawing 6]



[Drawing 7]



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1. Filing info( Application number,Filing date )
2. Publication info( Publication number,Publication date )
3. Detailed info of application
  - \* Kind of examiner's decision
  - \* Kind of final decision
  - \* Date of final decision in examination stage
4. Date of request for examination
5. Date of sending the examiner's decision of rejection( Date of sending the examiner's decision of rejection )
6. Appeal/trial info
  - \* Appeal/trial number,Date of demand for appeal/trial
  - \* Result of final decision in appeal/trial stage,Date of final decision in appeal/trial stage
7. Registration info
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